

## Claims

1. Infrared radiator with a heating element containing carbon fibers and arranged in a quartz glass tube, with its ends joined to contact elements running through the wall of the quartz glass tube, characterized in that the heating element (2) is spaced away from the wall of the quartz glass tube (1), and that the heating element (2) is centered on the axis of the quartz glass tube (1) by means of spacers (3).
2. Infrared radiator according to claim 1, characterized in that the heating element (2) has the form of a spiral or coiled ribbon.
3. Infrared radiator according to claim 2, characterized in that the inside diameter of the quartz glass tube (1) is at least 1.5 times as great as the diameter of the spirals or coils of the heating element (2).
4. Infrared radiator according to at least one of claims 1 to 3, characterized in that the spacers (3) are formed from molybdenum and/or tungsten and/or tantalum or an alloy of these metals.
5. Infrared radiator according to at least one of claims 2 to 4, characterized in that the spacers (3) have, at least on their side facing the heating element (2), a length in the

longitudinal direction of the heating element (2) such that it is greater than the spaces formed in this longitudinal direction between the coils of the heating element (2).

- 5 6. Infrared radiator according to at least one of claims 1 to 5, characterized in that ceramic (11), especially aluminum oxide or zirconium dioxide is arranged between heating element (2) and spacers (3).
- 10 7. Infrared radiator according to at least one of claims 1 to 6, characterized in that the contact elements (4) are formed of resilient material at their ends joined to the heating element (2).
8. Infrared radiator according to claim 7, characterized in that the resilient material is formed of molybdenum.
- 15 9. Infrared radiator according to at least one of claims 1 to 6, characterized in that the ends of the contact elements (4) which are joined to the heating element (2) are in the form of sleeves (5) clutching the ends of the heating element (2).
- 20 10. Infrared radiator according to claim 9, characterized in that the sleeves (5) are formed of molybdenum.

11. Infrared radiator according to at least one of claims 1 to 10, characterized in that graphite, especially as graphite paper (17; 17') is disposed between the ends of the heating element (2) and the contact elements (4).

5 12. Infrared radiator according to claim 11, characterized in that a noble metal paste and/or a metallic coating applied to the ends of the heating element is placed between the graphite and the heating element (2).

10 13. Infrared radiator according to claim 12, characterized in that the metallic coating is formed of nickel or a noble metal.

14. Infrared radiator according to claim 12 or 13, characterized in that the metallic coating is applied galvanically.

15 15. Infrared radiator according to at least one of claims 1 to 14, characterized in that contact making parts are joined to one another by means of resistance welding or laser welding.

20 16. Method for operating an infrared radiator according to claim 1, characterized in that the heating element (2) is heated to a temperature greater than 1000°C, preferably greater than 1500°C.